WHAT IS CLAIMED IS:

1. An optical component comprising:

a diffraction grating element of transmissive type having a flat plate, and a diffraction grating formed on one surface of said flat plate or formed within said flat plate in parallel with the one surface thereof; and

a prism composed of a material with a refractive index of n_1, said prism having a first surface on which the light diffracted by said diffraction grating element is incident, and a second surface from which the light having passed through the first surface is emitted;

wherein said diffraction grating element and said prism are provided within a medium with a refractive index of n_0; and

wherein, in the case that light with a wavelength λ is incident on said diffraction grating element at an incident angle of θ_0, then taking the incident angle of the light incident on the first surface of said prism, from said diffraction grating element, to be θ_2, taking the emission angle of the light emitted from said second surface of said prism to be θ_5, taking the temperature coefficient of the diffraction angle in said diffraction grating element to be F_g, taking the temperature coefficient of the emission

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angle θ_5 of the light emitted from the second surface of said prism, assuming that the incident angle θ_2 of the light incident on the first surface of said prism is fixed regardless of the temperature, to be F_p, and

5   taking the magnification rate of the angular dispersion caused by said prism to be M_p, said diffraction grating element and said prism are arranged such that the wavelength λ and the incident angle θ_0 satisfy the following relationship:

10   "$n_1 > n_0$ AND $|\theta_5| > |\theta_2|$" or

"$n_1 < n_0$ AND $|\theta_5| < |\theta_2|$",

whilst also satisfy the following relationship:

"$-2M_pF_g < F_p < 0$" or

"$-2M_pF_g > F_p > 0$" .

15   2. An optical component according to claim 1, wherein said diffraction grating element and said prism are mutually separated by a predetermined distance, by means of said medium with the refractive index of n_0.

3. An optical component according to claim 1,

20   wherein said diffraction grating element is attached to the first surface of said prism by means of an adhesive.

4. An optical component according to claim 1, wherein, in a temperature range of $-20°C$ to $+80°C$, said optical component satisfies the following

25   relationship:

"$F_p = -M_pF_g$" .

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5.   An optical component according to claim 1, wherein, taking the temperature coefficient of the emission angle θ_5 of the light emitted from the second surface of said prism to be F_t, and taking the angular dispersion of the emission angle θ_5 to be D_t, the absolute value of the ratio (F_t/D_t) is less than 0.4 pm/°C in a temperature range of -20°C to +80°C.

6.   An optical component according to claim 5, wherein, in a temperature range of -20°C to +80°C , the absolute value of the ratio (F_t/D_t) is less than 0.2 pm/°C.

7.   An optical component according to claim 1, wherein, taking the angular dispersion of said diffraction grating element to be D_g, taking the temperature coefficient of the angular dispersion D_g to be G_g, and taking the temperature coefficient of the magnification rate M_p of the angular dispersion caused by said prism to be H_t, then said optical component satisfies the following relationship:

"$-2M_pG_g < H_tD_g < 0$" or

"$-2M_pG_g > H_tD_g > 0$" .

8.   An optical component according to claim 7, wherein, in a temperature range of -20°C to +80°C , said optical component satisfies the following relationship:

"$-M_pG_g = H_tD_g$".

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9.   An optical component according to claim 1, wherein, taking the grating period of said diffraction grating to be Λ, then the temperature coefficient of the product ($n_0 \Lambda$) has a negative value, and the temperature coefficient of the ratio (n_1/n_0) has a negative value.

10.   An optical component according to claim 1, wherein said prism is composed of a semiconductor.

11.   An optical component according to claim 10, wherein said semiconductor is silicon.

12.   An optical device including an optical component according to claim 1, wherein said optical device multiplexes or demultiplexes light by using said optical component.

13.   An optical device according to claim 12, further comprising a housing hermetically sealing said optical component therein.

14.   An optical communications system including an optical device according to claim 12, wherein said optical communications system transmits signal light, and multiplexes or demultiplexes it by using said optical device.

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